We claim:

1. A method of inhibiting the replication of HIV in HIV-infected cells, comprising:

administering a therapeutically suitable glutaminase to HIV-infected cells in an amount sufficient to inhibit replication of HIV in said cells.

2. The method of claim 1 wherein said glutaminase is a *Pseudomonas* glutaminase.

3. The method of claim 1 wherein said glutaminase is a *Pseudomonas* 7A glutaminase.

4. A method of inhibiting the growth of cancer cells comprising:

administering a bound complex of a therapeutically suitable glutaminase and an antibody immunoreactive with a tumor-associated antigen to tumor cells which express said tumor associated antigen, the amount of said complex administered being sufficient to inhibit DNA synthesis in said cells.

5. The method of claim 4 wherein said glutaminase is a *Pseudomonas* glutaminase.

6 The method of claim 5 wherein said glutaminase is a *Pseudomonas* 7A glutaminase.

7. The method of claim 4 wherein the cancer cells are melanoma cells.

8. An *E. coli* cell which comprises *Pseudomonas 7A* glutaminase-asparaginase gene.

9. The cell of claim 8 which is deposited at the ATCC as accession no. 69117.

10. The cell of claim 8 which is capable of expressing said gene.

11. The cell of claim 8 wherein said gene has the nucleotide sequence shown in SEQ ID NO:1.

12. An isolated and purified DNA molecule comprising a nucleotide sequence coding for a therapeutically suitable glutaminase.

13. The DNA molecule of claim 12 wherein said glutaminase has a K_m of 10^{-6} to 10^{-4} M for its reactants, retains high activity in human sera, and is not strongly inhibited by the products of the reaction it catalyses.

14. The DNA molecule of claim 12 wherein said glutaminase is a *Pseudomonas* glutaminase.

15. The DNA molecule of claim 12 wherein said glutaminase is a *Pseudomonas* 7A glutaminase.

16. The DNA molecule of claim 12 which comprises the nucleotide sequence shown in SEQ ID NO:1.

17. The DNA molecule of claim 13 wherein said molecule is capable of expressing said glutaminase in a recombinant cell.

18. The DNA molecule of claim 12 wherein said glutaminase has the sequence shown in SEQ ID NO:2.

19. The DNA molecule of claim 13 wherein expression of said glutaminase is controlled by an inducible promoter.

20. The DNA molecule of claim 13 wherein expression of said glutaminase is controlled by a repressor.

21. The DNA molecule of claim 13 wherein the promoter is tac.

22. The DNA molecule of claim 17 comprising a transcriptional terminator 3' and 5' to said sequence of glutaminase.

23. The DNA molecule of claim 15 having a methionine codon 5' to the initial lysine codon of mature glutaminase.

24. A cell-free preparation of a therapeutically suitable glutaminase which is free of *Pseudomonas* endotoxin.

25. The preparation of claim 24 wherein said glutaminase is a *Pseudomonas* glutaminase.

26. The preparation of claim 24 wherein said glutaminase is a *Pseudomonas* 7A glutaminase.

27. The preparation of claim 23 which is free of other *Pseudomonas* proteins.

28. The preparation of claim 23 which is made by the process of:

culturing a recombinant microorganism comprising a DNA sequence encoding a therapeutically suitable glutaminase; and

collecting proteins produced by said microorganism.

29. The preparation of claim 24 wherein said glutaminase has the sequence shown in SEQ ID NO:2.

30. The preparation of claim 26 which has an initial methionine preceding the initial lysine of mature glutaminase.

31. A method of treating transformed cells in a body, comprising:

administering a plasmid comprising the nucleotide sequence of SEQ ID NO:1, said sequence under the transcriptional control of a tissue-specific promoter, said plasmid coated with poly-L-lysine covalently linked to a tissue-specific ligand.

32. The method of claim 31 wherein said transformed cells are hepatic cells.

33. A therapeutic composition comprising:

a complex comprising a therapeutically suitable glutaminase and an antibody which is specific for a tumour-associated antibody.

34. The composition of claim 33 wherein the glutaminase and the antibody

are covalently bound.

35. The composition of claim 33 wherein the glutaminase and the antibody are portions of a chimeric protein.

36. The composition of claim 33 wherein said glutaminase is a *Pseudomonas* glutaminase.

37. The composition of claim 36 wherein said glutaminase is a *Pseudomonas* 7A glutaminase.

38. The composition of claim 33 wherein the antibody is specific for a melanoma-associated antigen.

39. The method of claim 4 wherein said antibody and said glutaminase are covalently bound.

40. The method of claim 4 wherein said antibody and said glutaminase are portions of a chimeric protein.

41. A method of treating transformed cells in a body, comprising:

administering a plasmid comprising the nucleotide sequence of SEQ ID NO:1, said sequence under the transcriptional control of a tissue-specific promoter, said plasmid encapsulated by a cationic liposome which comprises a tissue-specific ligand.

42. The method of claim 31 wherein said transformed cells are hepatic cells.

43. A method of treating a tumour-bearing patient, comprising the steps of:

obtaining tumour infiltrating lymphocytes from a tumour-bearing patient;

transfecting said tumour infiltrating lymphocytes with a vector which causes expression of *Pseudomonas* 7A glutaminase in human cells;

administering said transfected tumour infiltrating lymphocytes to the patient

to supply said tumour with *Pseudomonas* 7a glutaminase.

44. A method of treating a tumour-bearing patient, comprising the steps of:

obtaining tumour infiltrating lymphocytes from a tumour-bearing patient;

complexing said tumour infiltrating lymphocytes with a vector comprising the nucleotide sequence of SEQ ID NO:1, said vector causing expression of *Pseudomonas* 7A glutaminase in human cells;

administering said complex of lymphocytes and vector to the tumour-bearing patient to supply said tumour with *Pseudomonas* 7A glutaminase.

45. The method of claim 44 wherein said vector is coated with poly-L-lysine.

46. The method of claim 45 wherein said poly-L-lysine is covalently linked to a tissue-specific ligand.